

CLAIMS

1. A peptide of a size comprised between 5 and 40 amino acids, originating from a cytokine, characterized in that at least one of its amino acids comprises at least one of its atoms separated by a distance d of less than 5 angströms from an atom of the receptor corresponding to said cytokine, the spacing d being evaluated on the basis of structural data, with the exception
 - of the peptides comprised between the 2nd and 3rd cysteine of h RANTES, MIP 1 α and MIP 1 β , and
 - of the peptides comprised between amino acids 123 and 140 of IFN α .
- 5 2. A peptide according to claim 1, characterized in that two of its consecutive amino acids comprise at least one of their atoms separated by a distance d of less than 5 angströms from an atom of the receptor corresponding to said cytokine
- 10 3. A peptide according to one of claims 1 and 2, characterized in that it is chosen from the fragments of the following cytokines: TGF β , IL1 β , VEGF, TNF α , IFN α and γ , IL 4, 5, 6, 10, 12, 13, 15, 18, 23, IP10, MIP 1 α and 1 β , and Rantes.
- 15 4. A peptide according to one of claims 1 to 3, characterized in that it is chosen from the fragments of the following cytokines: TGF β , IL1 β , VEGF, TNF α , IFN γ , IL 4, 5, 6, 10, 12, 13, 15, 18, 23.
- 20 5. A peptide according to one of claims 1 to 4, characterized in that d is less than 4 angströms.
- 25 6. A peptide according to one of claims 1 to 5 characterized in that 3 or 4 consecutive amino acids of the cytokine peptide correspond to this same spacing criterion.
- 30 7. A peptide according to one of claims 1 to 6 characterized in that it comprises less than 30 amino acids.
8. A peptide as defined in claim 1, chosen from or originating from those the names of which follow:

- hIL1 β (Human Interleukin 1 beta)

1-APVRSLNCTL-10 (SEQ ID No. 1)
29-LHLQGQDMEQQ-39 (SEQ ID No. 2)
123-STSQAENMPV-132 (SEQ ID No. 3)
- hvEGF (Human vascular Endothelial Growth Factor) 73-IMRIKPHQGQHIGEMS-88 (SEQ ID No. 4)
- hTNF α (Human Tumor Necrosis Factor alpha) 20-PQAEGQLQWLNRANALLANGVELRDNQLVPSEG-54 (SEQ ID No. 5) 80-ISRIA VSYQT KVNLLS-95 (SEQ ID No. 6) 124-FQLEKGDR LSAEINR-138 (SEQ ID No. 7)
- hIFN γ (Human Interferon gamma) 1-MQDPYVKEAENLKKYFNAGHS DVA DN GTLFLGILKN-36 (SEQ ID No. 8) 118-MAELSPA AKTGKR KRS-133 (SEQ ID No. 9)
- hIL10 (Human Interleukin 10) 20-PNMLRDLRDAFSRVKTFFQM KDQLDNLLKE-50 (SEQ ID No. 10)
- hIL4 (Human Interleukin 4) 5-ITLQEIIKTLNSL-17 (SEQ ID No. 11) 70-AQQFHRHKQLIRFLKRLDRNLWGLAG-95 (SEQ ID No. 12)
- hIL12p40 (Human Interleukin 12 under unite p40) 80-LLLHKKEDGIWSTDILKDQKEPKNKTFLRCE-110 (SEQ ID No. 13) 135-KSSRGSSDPQG-145 (SEQ ID No. 14)
- hIL18 (Human Interleukin 18) 1-YFGKLESKLSVIRNLNDQVLIDQGNRPLFEDMTD-35 (SEQ ID No. 15) 68-CEKISTLSCEN-78 (SEQ ID No. 16) 141-EDELGDRSIMFTVQNED-157 (SEQ ID No. 17)
- hIP10 (Human Interferon gamma inducible protein) 39-VEIIATMKKGEKRC LNPESKA-60 (SEQ ID No. 18)

- hIL5 (Human Interleukin 5)
1-IPT SALV KETL ALLST HRT LLI ANET-26 (SEQ ID No. 19)
96-LQEFLGVMNTEWI-108 (SEQ ID No. 20)
- hTGF β 2 (Human Transforming Growth Factor beta type 2)
25-KRDL GWK WIHE-35 (SEQ ID No. 21)
87-TI LY YIG KTP KIEQ -100 (SEQ ID No. 22)
- hIL15 (Human Interleukin 15)
1-ANWVN VISDLKKI-13 (SEQ ID No. 23)
74-SSNGNV TESGC KCE CEELEKKNI KEFL QSFV HIVQM F-111 (SEQ ID No. 24)
- hIL6 (Human Interleukin 6)
28-KQIR YILD GISA-39 (SEQ ID No. 25)
114-RAVQM STKV LIQFLQ KKAK NLD AITTPDPTT NASLL-149 (SEQ ID No. 26)
- hMIP1 α (Human Macrophage Inflammatory Protein alpha)
51-ADPSEE WVQKYV SDLELSA -69 (SEQ ID No. 27)
- hMIP1 β (Human Macrophage Inflammatory Protein beta)
52-ADPSE SWVQEYVYDLELN-69 (SEQ ID No. 28)
- hIL13 (Human Interleukin 13)
8-TALRE LIEEL-17 (SEQ ID No. 29)
57-CSAI EKTQRMLSGFCPHKVSAGQFSS-82 (SEQ ID No. 30)
- hIL23 (Human Interleukin 23)
52 GHMDLREEGDEETT 65 (SEQ ID No. 31)
115 LLPDSPVGQLHASLLGLSQ 133 (SEQ ID No. 32)
160 LLRFKILRSLQAFVA VAARV 179 (SEQ ID No. 33)
- hRANTES (Human Regulated upon Activation Normal T-cell expressed)
51-ANPEKKWVREYINSLEMS-68 (SEQ ID No. 34)

-hIFN α (Human Interferon alpha)

12-RRTLMLLAQMRK-23 (SEQ ID No. 35)

95-LEACVIQGVGVTETPLMKEDSILAVRK-121 (SEQ ID No. 36)

or a fragment of said peptides.

9. A peptide derivative as defined in one of claims 1 to 8 by deletion, substitution, addition, cyclization, stereochemical modification (use of 5 D series amino acids), or functionalization (such as acylation) of one or more amino acids of said peptide.
10. An immunogenic compound characterized in that it comprises a peptide or peptide derivative as defined in one of claims 1 to 9, it being understood that it does not comprise other epitopes of said cytokine and in 10 that it is capable of generating in a subject antibodies recognizing the native cytokine.
11. A peptide or peptide derivative or immunogenic compound as defined in one of claims 1 to 10 or comprised between amino acids 123 and 140 of IFN α , for its use in a method of therapeutic treatment of the human or 15 animal body.
12. Use of a peptide or peptide derivative or immunogenic compound as defined in one of claims 1 to 10 or comprised between amino acids 123 and 140 of IFN α , for the preparation of a curative or preventative medicament intended for the treatment or prevention of the diseases linked to 20 an excess or to the presence of cytokines.
13. Use of a peptide or peptide derivative or immunogenic compound as defined in one of claims 1 to 10 or comprised between amino acids 123 and 140 of IFN α , for the preparation of a curative or preventative medicament intended for the treatment of an auto-immune disease.
- 25 14. A pharmaceutical composition which contains at least one peptide or peptide derivative or immunogenic compound as defined in one of claims 1 to 10 or comprised between amino acids 123 and 140 of IFN α , as active ingredient.